



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

Accredited by NAAC-UGC with 'A++' Grade (Cycle III) &

Accredited by NBA (B.E - CSE, EEE, ECE, Mech & B.Tech.IT)

COIMBATORE-641 035, TAMIL NADU



Unit 4: TQM Tools

Puzzle:

A company wants to use FMEA (Failure Modes and Effects Analysis) to identify potential failure modes in its assembly process. The assembly process has three potential failure modes:

1. Incorrect assembly of components.
2. Missing components.
3. Poor quality of components.

Rate the severity, occurrence, and detection for each failure mode on a scale of 1 to 10. Use the following ratings to compute the Risk Priority Number (RPN):

1. **Severity:** How serious is the failure mode if it occurs?
2. **Occurrence:** How likely is the failure mode to occur?
3. **Detection:** How likely is the failure to be detected before reaching the customer?

Solution:

For each failure mode, you calculate the RPN using:

$$\text{RPN} = \text{Severity} * \text{Occurrence} * \text{Detection}$$

Example Ratings:

1. Incorrect assembly of components:

- Severity: 8
- Occurrence: 4
- Detection: 6
- $\text{RPN} = 8 * 4 * 6 = 192$

2. Missing components:

- Severity: 7
- Occurrence: 5
- Detection: 7
- $\text{RPN} = 7 * 5 * 7 = 245$

3. Poor quality of components:

- Severity: 9



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- Occurrence: 3
- Detection: 5
- $RPN = 9 * 3 * 5 = 135$

In this case, "Missing components" has the highest RPN, indicating it is the most critical failure mode to address.